WHAT IS CLAIMED IS:

1. A bandwidth-independent method for recording and transmitting video images, comprising the steps of:

inputting a first analog video image from a camera device into a transmitter system;

digitizing said first analog video image to a first bit map frame and dividing said first frame into a first plurality of individual blocks to define a reference frame;

inputting a second analog video image from a camera device into a transmitter system;

digitizing said second analog video image to a second bit map frame and dividing said second frame into a second plurality of individual blocks to define a current frame;

performing a discrete cosine transform (DCT) to convert each of said first and second plurality of blocks from a time domain to a frequency domain, each block subsequent to said DCT being represented by a sum of sines and cosines preceded by a DC coefficient and a plurality of AC coefficients;

truncating higher order AC coefficients within said plurality of AC coefficients to effect lossy compression of said sum;

for each block, comparing the DC coefficient from the reference frame with the DC coefficient for a corresponding block in the current frame;

for each block, comparing a first plurality of AC coefficients from said reference frame with a second plurality of AC coefficients for the corresponding block from said current frame;

identifying any blocks within said plurality of blocks for which a difference between said DC coefficients exceeds a threshold value as a changed DC coefficient;

identifying any blocks within said plurality of blocks for which a difference between at least one of said first and second pluralities of AC coefficients exceeds a threshold value as changed blocks;

transmitting at least one of said changed DC coefficient and said changed blocks to a receiver or storage device as changes, unchanged blocks not being transmitted; and

updating the reference frame with any changes.

2. The method as set forth in claim 1, further comprising the steps of:

receiving changes at the receiver;

performing an inverse DCT on changed blocks for conversion from the frequency domain to the time domain; and

displaying a resulting image at the receiver.

3. The method as set forth in claim 1, wherein said step of

truncating is dynamically adjustable on a real time basis to alter an image quality of said video image transmitted to said receiver or storage device.

4. The method as set forth in claim 1, wherein said step of transmitting is initiated by said receiver.

5. The method as set forth in claim 1, wherein said step of transmitting is initiated by said transmitter system in response to a sensed trigger indicating an alarm condition.

6. The method as set forth in claim 1, wherein said steps of comparing and identifying include the steps of:

comparing DC coefficients of said current and reference frames;

in response to identifying a difference therebetween that is greater than a threshold value, setting a DC coefficient indicator;

comparing each of said plurality of AC coefficients from said current frame with a corresponding AC coefficient from said reference frame; and

in an absence of differences between said plurality of current frame AC coefficients and said corresponding AC coefficients from said reference frame that exceed a threshold

value, transmitting only said changed DC coefficient to said receiver.

7. The method as set forth in claim 1, further comprising after the step of identifying and before the step of transmitting, the step of performing a lossless compression on said changed blocks.

8. The method as set forth in claim 7, wherein said step of performing a lossless compression includes performing a Huffman compression.

9. The method as set forth in claim 1, wherein when said changed blocks are transmitted to the storage device, the reference frame changes with each incoming frame so as to be maintained as a most recent image.

10. The method as set forth in claim 9, wherein images sent to the storage device represent pre-alarm images and are stored according to image changes relative to the most recent image as the reference frame, a determination of said changes and storing thereof comprising the steps of:

capturing a first image and converting said first image from a time to frequency domain;

capturing a second image and converting said second image from the time to frequency domain;

using said second image as the reference frame, differencing the first image against the second image and storing any differences therebetween as a reference update;

capturing a third image and converting said third image from the time to frequency domain;

using said third image as the reference frame, differencing the second image against the third image and storing any differences therebetween as a reference update; and

continuing to use a latest frame as the reference frame against which a next previous frame is differenced, until an alarm condition is detected at which time transmission begins with a most recent reference frame.

11. A bandwidth-independent system for recording and transmitting video images comprising a transmitter unit on-board an aircraft and a remotely located, ground-based receiver unit, the transmitter unit including:

a multi-function input/output converter and interface device for receiving an analog video image from a camera device on board the aircraft;

a frame grabber for digitizing said analog video image to a bit map frame and dividing said frame into a plurality of

individual blocks;

a DCT engine coupled to said frame grabber for performing a discrete cosine transform (DCT) to convert each of said plurality of blocks from a time domain to a frequency domain, each block after said DCT being represented by a sum of sines and cosines preceded by a first plurality of coefficients;

an on-board storage device coupled to said DCT engine for storing a reference frame;

a system controller and compression engine coupled to said DCT engine for truncating higher order coefficients to effect lossy compression of said sum, said controller and compression engine including an algorithm for comparing a remainder of said first plurality of coefficients with a second plurality of coefficients from a corresponding block in said reference frame for each of said plurality of blocks, said algorithm identifying those blocks within said plurality of blocks for which a difference between at least one of said remaining first and second pluralities of coefficients exceeds a threshold value as changed blocks;

a lossless compression device for compressing and transmitting said changed blocks to the receiver over a high latency transmission medium or to said on-board storage device, unchanged blocks not being transmitted; and

said on-board storage device storing the reference frame updated with the changed blocks.

12. The system as set forth in claim 11, wherein said receiver unit initiates transmission of said changed blocks from said transmitter.

13. The system as set forth in claim 11, wherein said transmitter unit initiates transmission of said changed blocks in response to a sensed trigger on said aircraft indicating an alarm condition.

14. The system as set forth in claim 11, wherein a number of higher order coefficients truncated by said system controller and compression engine is dynamically controllable on a real time basis by a system user to vary an image quality of said video image.

15. The system as set forth in claim 11, wherein the receiver unit comprises:

a system controller and decompression engine;

an inverse DCT engine;

a display device for viewing video images; and

a receiver transmitter for sending control information to said on-board transmitter unit.

16. A bandwidth-independent method for recording and transmitting video images from a transmitter system on-board an

aircraft to a ground-based receiver system, comprising the steps of:

inputting a first analog video image from a camera device into a transmitter system;

digitizing said first analog video image to a first bit map frame and dividing said first frame into a first plurality of individual blocks to define a reference frame;

inputting a second analog video image from a camera device into a transmitter system;

digitizing said second analog video image to a second bit map frame and dividing said second frame into a second plurality of individual blocks to define a current frame;

performing a discrete cosine transform (DCT) to convert each of said first and second plurality of blocks from a time domain to a frequency domain, such that each block is represented by a sum of sines and cosines preceded by a plurality of coefficients that includes a coefficient subset;

comparing coefficients including said coefficient subset of said first plurality of blocks with corresponding coefficients of said second plurality of blocks, respectively;

identifying those blocks having coefficient changes that exceed a threshold value;

transmitting, in response to determining that said coefficient changes affect only coefficients in said coefficient

subset, only said coefficient subset to at least one of an on-board storage device within said transmitter system and said ground-based receiver;

marking those blocks having coefficient changes beyond any in said coefficient subset as changed blocks and transmitting said changed blocks to at least one of an on-board storage device within said transmitter system and said ground-based receiver, unchanged blocks not being transmitted; and

updating the reference frame with received changes.

17. The method as set forth in claim 16, wherein said reference frame is subsequent in time to said current frame.

18. The method as set forth in claim 17, wherein said changed blocks are transmitted to the on-board storage device and represent pre-alarm images, with the reference frame changing with each incoming frame so as to be maintained as a most recent image, a determination of image changes relative to the most recent image as the reference frame comprising the steps of:

capturing a first image and converting said first image from a time to frequency domain;

capturing a second image and converting said second image from the time to frequency domain;

using said second image as the reference frame,

differencing the first image against the second image and storing any differences therebetween as a reference update;

capturing a third image and converting said third image from the time to frequency domain;

using said third image as the reference frame, differencing the second image against the third image and storing any differences therebetween as a reference update; and

continuing to use a latest frame as the reference frame against which a next previous frame is differenced, until an alarm condition is detected at which time transmission begins with a most recent reference frame.

19. A bandwidth-independent method for recording and transmitting video images using a transmitter system with a camera device on-board an aircraft to a ground-based receiver system, comprising the steps of:

capturing a first image with said camera device and converting said first image from a time to frequency domain;

capturing a second image with said camera device and converting said second image from the time to frequency domain;

using said second image as the reference frame, differencing the first image against the second image and storing any differences therebetween as a reference update;

capturing a third image with said camera device and

converting said third image from the time to frequency domain;

using said third image as the reference frame, differencing the second image against the third image and storing any differences therebetween as a reference update; and

continuing to use a latest frame as the reference frame against which a next previous frame is differenced, until an alarm condition on said aircraft is detected;

transmitting, in response to said alarm condition, stored images to said receiver system beginning with a most recent reference frame;

continuing to input subsequent analog video images from the camera device into the transmitter system;

digitizing said subsequent analog video images to bit map frames and dividing said frames into individual blocks;

performing a discrete cosine transform (DCT) to convert each of said blocks from a time domain to a frequency domain;

for each block, comparing coefficients thereof with coefficients of a corresponding block from a reference frame that is previous in time;

identifying any blocks for which a difference between said coefficients exceeds a threshold value as a changed block;

transmitting only said changed blocks to said receiver system, unchanged blocks not being transmitted.